

# ETHYL CORPORATION

US EPA RECORDS CENTER REGION 5



446770

LAW DEPARTMENT

April 7, 1986

ETHYL TOWER  
451 FLORIDA  
BATON ROUGE, LA. 70801

Mr. Steve Cunningham  
Remedial Action Section  
Site Assessment Unit  
Stephen Mason Building  
530 W. Allegan  
Lansing, MI 48909

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Dear Mr. Cunningham:

Donald E. Park, our corporate director of environmental affairs, underwent coronary artery bypass surgery this morning. Obviously, he will be unable to attend the meeting on the 17th. Rather than postpone the meeting until he has recovered, I will be attending the meeting with other Ethyl Corporation technical staff.

For your background, we have enclosed a general history of Ethyl Corporation's operations in the Detroit area.

I look forward to our meeting and resolution of any questions you may have.

Respectfully yours,

ETHYL CORPORATION

By: David C. Bach  
Assistant Counsel

DCB:ms  
Enclosure

cc: D. E. Park

**Ms. Virginia Loselle**  
Michigan Department of Natural Resources  
15500 Sheldon Road  
Northville, MI 48167

## ETHYL CORPORATION'S FERNDAL LABORATORY

The Ferndale Laboratory was built as an automotive research center with the main goals of improving both the company's initial product, tetraethyl lead antiknock fluid, and the engines which used it. Research programs, many in cooperation with the automotive companies of Detroit, successfully developed better lead scavengers for inclusion in the product and improvements in combustion zone designs and metallurgy. The scavenger research led to the most important patent ever awarded to the Corporation. These discoveries greatly increased the power, economy, and life of the automobile engine.

Ethyl Gasoline Corporation, as it was known at that time, first began moving research personnel to Detroit in 1927. The initial offices were on East Milwaukee Avenue. The original seven acre plot of land on Eight Mile Road was purchased in 1936, and a pilot plant and test facility, "F" Building, was built that same year. This was eventually converted to a maintenance and service building. "D" Building was built three years later, and the engineering research organization moved in.

The property was increased to twenty-five acres by purchases in 1940 and 1941. The major building program of the facility began the same year with the construction of five more buildings in the same attractive brick style begun with "D" Building. These included the main office and administration building, "A", two wings for automotive research, "B" and "C", the aircraft engine laboratory, "E", and the analytical laboratory "G" Building.

Research vital to the development and performance of the high compression aircraft engines of World War II was accomplished in Detroit in this early period. The sodium cooled valve was invented here, and lead scavengers were developed to handle the extreme service of combat aircraft engines.

A new pilot plant facility, "U" Building, was built in 1947. The research laboratories were expanded with the construction of "DA" Building in 1952. Much of the early research, even before the War, was defensive in nature. If a better antiknock could be found, Ethyl was determined to find it. No better has been found, although several chemicals were developed which were useful adjuncts to lead antiknocks. Phosphorus compounds were used for a brief period in the early sixties, but a manganese compound, MMT, was the only one to achieve any lasting success. Developed in Detroit in the fifties, it is still made and marketed by Ethyl.

The nine acre field to the north of the facility was acquired in 1953. A contemporary aerial photograph shows a bare, sandy area extending north to Marshall Avenue. Ethyl never developed the plot and we have found no information that anything was ever buried in it.

The chemical research facilities were expanded in 1955 with the addition of the second story to "DA" Building and the construction of two new wings to the north and south of it. The high pressure laboratory, "A" Building, was built two years later.

The Ferndale Laboratory reached its maximum complement of over five hundred personnel in the middle to late fifties. Of these, one hundred and fifty were chemists and engineers. The main research focus continued to be automotive oriented although, as the corporation diversified following its acquisition by Albemarle in 1962, the research activities began to diversify also.

The last major structure built on the property was, appropriately, the air emissions laboratory built in 1968. Ethyl developed the lean-burn engine and related engine modifications which enabled engines using gasoline containing tetraethyl lead to meet any reasonable emission standard.

As other automotive research efforts wound down, manning of the facility was gradually reduced until, at the closure in 1983, it was down to some two hundred people including sixty chemists and engineers.

After the closure, a very comprehensive study was made of what possible environmental problems might remain at the site. Laboratory records were searched and many employees from the early years, both retired and those still with Ethyl, were contacted and interviewed. A picture evolved of a group of responsible and professional chemists who had been careful about what they had buried on their home property.

There were never any commercial manufacturing operations in Ferndale, but small amounts of chemicals and chemical residues from laboratory and pilot plant experiments were buried in specific areas from time to time during the life of the facility.

A map was maintained of the area north of the high pressure laboratory which was the only burial area used from 1963 to 1983. The practice here was to dig a 10 foot by 10 foot pit and to periodically cover the debris with sand until the pit was nearly full. Most of the fill in the pits was sand. The standing procedure was to break or puncture all containers. The map locates eleven such pits.

The survey efforts were concentrated on this area. Six groundwater monitoring wells surrounding the area were installed in 1983. These were sampled two months later and the analyses showed no contamination. Subsequent samples analyzed by gas chromatography in December, 1985, indicated trace quantities of two organic chemicals in the wells to the south. The 1-5 parts per billion chloroform found in two wells could have been either background or local, but, in either case, it is ten times lower than found in the municipal water system and could not be a problem to anyone. The USEPA's recently proposed maximum concentration for toluene in drinking water supplies of 2.0 parts per million indicates that 1-5 parts per billion of this chemical found in one well is not a significant hazard.

The THF found in all of the samples came from the solvent cement used in constructing the wells.

In April, 1984, a tractor mounted post hole digger with a four inch by eight foot auger was used to dig into the pits. All of the pits were checked; a total of twenty holes were augered. The auger revealed thin layers containing small amounts of decomposing chemicals scattered through the sand. Thicker layers of pure sand separated these, and, in each case, the bottoms of the holes were clean. The chronologically earlier pits were successively cleaner and more shallow than the more recent ones. Although some chemical contamination was found, it was much too little and too scattered to warrant any remedial action.

Most of the old hands interviewed had recalled the burial of two small aluminum borohydride cylinders years before. The map showed their locations and a date of 1973. Memories were that the cylinders were buried because the valves plugged and there was no good way to insure they were entirely empty and safe. Aluminum borohydride is not a toxic problem but it is a highly pyrophoric chemical, particularly in the presence of the least amount of moisture. Potential sale of the property led to a quick decision to recover the cylinders to eliminate any chance of a future accident. They were dug up with a back-hoe on May 15, 1984, in an operation monitored by two officers of the Ferndale Fire Department.

The survey indicated that between 1948 and 1962 some chemicals had been buried in the area north of the plastic test panel rack. These were remembered as reactive sodium compounds which were reacted with water and the residues put in manually dug holes. A few holes were augered in this area, but nothing was found.

The original disposal area, used until as late as 1955, was near the northwest corner of the main parking lot. This was a wooded area, and small shallow holes were dug wherever convenient between the trees. From the search made in the much more recent burial area, it would not seem possible for any hazard to exist here.

After reviewing the data from the interviews, the analyses, and the digging around the facility, it was concluded that the property was safe and that there were no environmental hazards associated with it.







